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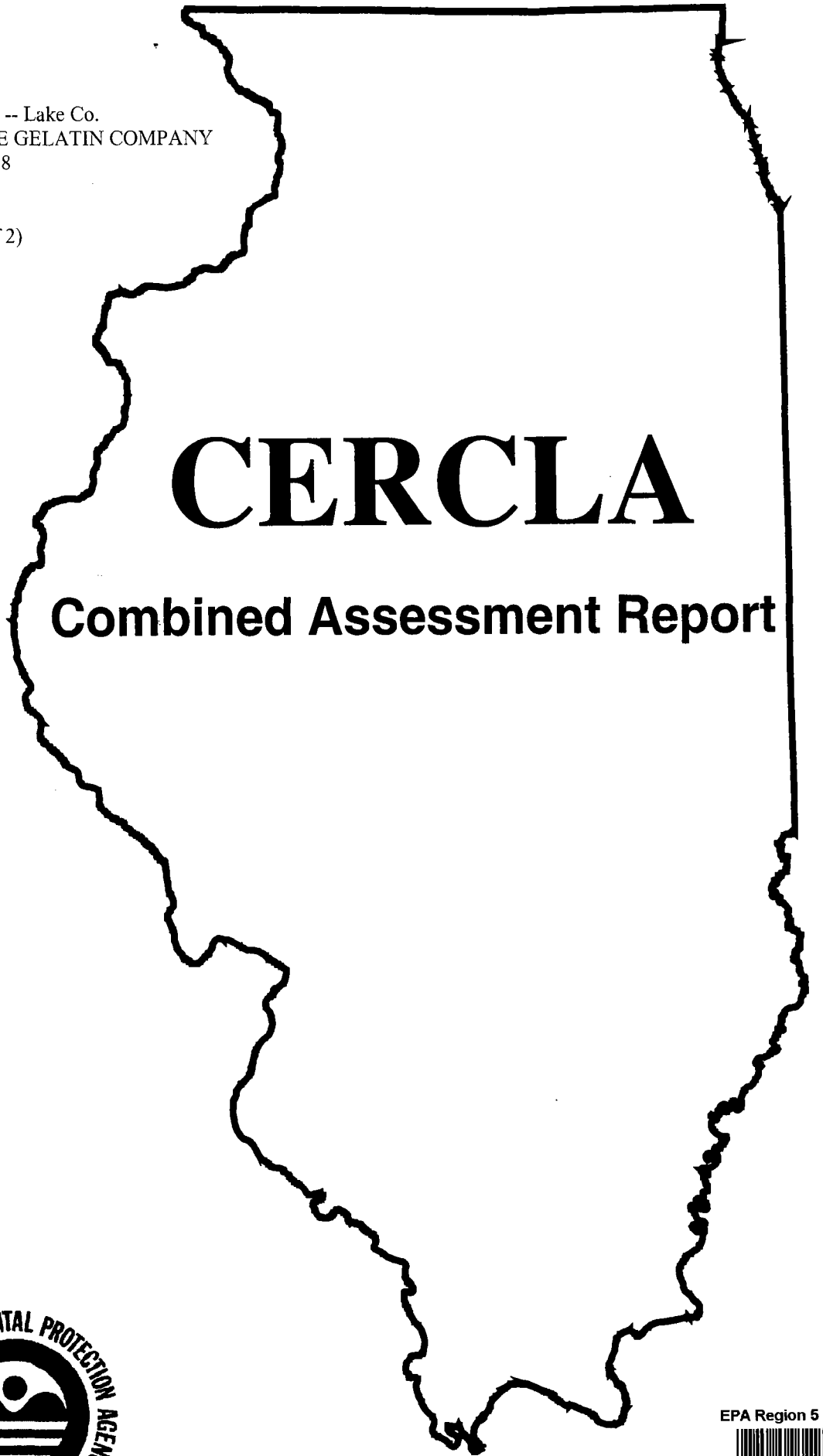
GRAYSLAKE GELATIN COMPANY
ILD000036558
HRS/SF

(Volume 1 of 2)

CERCLA

Combined Assessment Report



COMBINED ASSESSMENT REPORT

for:

GRAYSLAKE GELATIN COMPANY
GRAYSLAKE, ILLINOIS

ILD 000036558

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
FEDERAL SITE REMEDIATION SECTION
OFFICE OF SITE EVALUATION

MAY 28, 2003

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1.0 INTRODUCTION

INTRODUCTION

On September 28, 2001, the Illinois Environmental Protection Agency's (IEPA) Office of Site Evaluation Program was tasked by the U.S. Environmental Protection Agency (U.S. EPA) to conduct a Combined Assessment (CA) of the Grayslake Gelatin Company (ILD000036558) site located in Grayslake, Illinois. The CA was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

Grayslake Gelatin (ILD000036558) was initially investigated by the Illinois Environmental Protection Agency (IEPA) Bureau of Air for improper asbestos removal (1992) during renovation of plant buildings east of the main building. The Bureau of Air then recommended that further investigation of the property take place due to possible past hazardous waste disposal practices. As a result of this recommendation, Grayslake Gelatin Company was placed on the Comprehensive Environmental Resource Compensation and Liability Inventory System (CERCLIS) list on October 13, 1993 as a site discovery. The site was placed on CERCLIS in response to concerns that past site activities may have resulted in the release of chemical substances into pits behind the facility, and thereby entering the environment. The substances had the potential to enter the environment through four environmental pathways; groundwater, surface water, soil exposure, and air releases potentially endangering the life and health of wildlife and human populations. The potential for contamination exists, both, onsite and at nearby off-site locations. This potential stems from the following factors: The company had operated from 1900 to 1984; production/manufacturing activities produced unknown wastes;

quantity of waste is unknown; unknown waste disposal practices; presence of overhead and under ground piping leading to unlined pits/lagoons; a few areas on the property reportedly were locations of trenches; residential areas are within two hundred feet of the subject property.

The Combined Assessment is being conducted to collect information sufficient to support a decision regarding the need for further action under CERCLA. The assessment will investigate & discuss the type of site, operational history, the four environmental pathways (groundwater migration, surface water migration, soil exposure and air migration), the environmental hazards associated with the site, and environmental samples collected in 1994 on and around the facility. There are no RCRA implications or actions associated with this site.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

Grayslake Gelatin Co. is located in east-central Grayslake, Illinois, one block north of the intersection of Railroad Avenue and Center Street in Avon Township, Lake County (see Figures 1, 2 & 3). Company operations consisted of manufacture of gelatin for industrial purposes. Currently the plant structures, former manufacturing and active areas occupy approximately 10.86 acres of land at the mentioned location. The company also, at some point in its history, had ownership of a large parcel of farm ground immediately adjacent to and east of the current property. During that time Grayslake Gelatin held a total of 65 acres. The site specific location of the current Grayslake Gelatin Co. property is described generally as follows: SE1/4 & NE1/4 & NW1/4, NW1/4, SW1/4 of Section 26, T.45N-R.10E. (Figure 2). The company is situated in an urban setting within the town of Grayslake. Bordering the property on the north is Central Park, on the east is a former farmstead (currently not in operation), on the south is a warehouse and a residential area, and on the west is the Soo Line Railroad tracks, beyond which is the Grayslake downtown area and residential areas.

Beyond the structures, gravel and asphalt drive ways and parking areas, the property is relatively flat with various piles of soil located near the old lagoons/pits. The property currently has a combination of vegetated and bare areas. Vegetated areas consist of various types and sizes of grasses, weeds, bushes and trees. Grass and weeds associated with the vegetated areas are covering most of the property. Bushes and trees are located, both, around the property's perimeter and scattered throughout the acreage. At the property's northern end, a three and one half acre retention pond is present. The pond does not appear to be the main recipient of drainage from

the surrounding fields, rather for drainage from runoff gathered in storm drains near the buildings and driveway areas of Grayslake Gelatin Company. Other drainage is handled by a ditch running north and south, the length of the property, along the Soo Line Railroad tracks at the west side of the property.

The property is situated approximately three hundred feet northeast of the Grayslake downtown business area and within two hundred feet, east, of the closest residential dwelling. Within four miles of the property (Figure 7), land use consists of commercial/retail, manufacturing, residential and agricultural. Grayslake Jr. High School is located approximately one thousand feet east-northeast of the property. Grayslake High School is located approximately five hundred feet west of the property.

The property can be accessed by vehicle from the south on Railroad Avenue and from the east by foot. The property is entirely fenced, with six-foot high chain link fence topped with three strands of barbed wire, except along the southeastern perimeter. A locking gate is also present at the front entrance to the property on Railroad Avenue.

The surface water runoff route (Figure 6) is vague once off site, however, the flow south can be traced to Center Street, south of the property, then east along Center Street eventually following drainage routes north approximately seven miles and terminating in Miltmore Lake. Additional details regarding the surface water runoff route can be found in Section 3.2 of this report.

2.2 HISTORY

The Grayslake Gelatin Company is no longer in operation, having gone out of business in 1984. The company had begun operating shortly after it was built in 1900 and produced gelatin for industrial purposes. Gelatin was made from Grade A pork skins. The skins were boiled which produced a thick liquor. The liquor was then dried and powdered to develop unflavored gelatin. This gelatin was then sold to individual manufacturing companies where the gelatin was flavored (ie: Jello Brand Gelatin) or formed into capsule shells for encapsulation of medication. Information regarding the method of disposal of pork skins and other waste has not been found. An incorporation date was not found in the Illinois Secretary of State' Corporate Information Division records. Prior to construction of the Gelatin facility this parcel of land was used for agricultural purposes. The company was situated on property encompassing a total area of approximately sixty-five acres. Manufacturing activities were formerly carried out in structures and adjacent land consisting of approximately three and one half acres. An additional five acres of land located immediately north of the buildings was used as a dump area or waste disposal area for the waste streams of the gelatin plant. The aforementioned lagoons/pits are located at the south end of this five acre section of property. On another three acre section of the property, located immediately east of the manufacturing buildings, was Grayslake Gelatin's wastewater treatment plant. This plant treated process wastewater prior to discharge to the Village of Grayslake sewer system. The remaining fifty-three and one half acres was either farmed by tenant farmer or left unused. Between five and ten years after Grayslake Gelatin ceased operations, the owner (private owner) of the property began renovation of the buildings. This was accomplished by renovating one building, advertising availability of space, obtaining a

leaser, then beginning on the next. Three of the four former plant buildings have undergone renovation. Current use of the renovated buildings ranges from office space to small manufacturing operations. Plans for the fourth building are unknown. The owner has recently offered the facility for sale.

3.0 COMBINED ASSESSMENT ACTIVITIES

3.1 INTRODUCTION

This section contains information gathered to facilitate preparation of the formal CERCLA Combined Assessment. Specific activities included an internal file search, field reconnaissance inspection, and site representative interview.

3.2 RECONNAISSANCE ACTIVITIES

A CERCLA pre-remedial site reconnaissance was conducted on July 30, 2002, by personnel of the Office of Site Evaluation (OSE) of the Illinois Environmental Protection Agency (IEPA). The site was observed to be almost entirely fenced except along the south-eastern portion of the property. The property is relatively flat with a few areas of undulating ground surface. All activity at the site was concentrated inside the eastern most buildings. Employee parking facilities were noted to be in gravel and asphalt areas located along the north and south side of the eastern buildings and north of the western building. While inspecting the immediate areas around the buildings, reconnaissance personnel noted over 100 55-gallon drums stored on pallets, stacked two levels high, labeled "Spent Optical Solution" located north of the western buildings. The drums were observed to be in good condition. Also, noted in this area were five above ground storage tanks. Contents are unknown at the time of this writing. Continuing observations around the western buildings revealed deteriorating brick along the bottom of the western wall of the western most building. This may just be old age as no staining or discoloration was present. The drainage ditch along the railroad tracks, adjacent to this building, was noted to be heavily vegetated with, small bushes and small trees. Further north, along the

property boundary, this ditch was observed to be heavily vegetated with grass and weeds along with some small bushes and trees. Some scattered locations in this ditch also contained wetland plants. The eastern buildings in the Grayslake Gelatin complex were noted to be in good condition. No deterioration was present. Inspection of the area east of the eastern most buildings, the former location of the company's wastewater treatment plant, revealed no trace of the plant (Figure 4). The reconnaissance continued to the northern portion of the property, north of the western and main plant buildings. This five acre portion of land contains two lagoons/pits, open area and the water retention pond (Figure 4). The lagoons/pits were located along the south end of this parcel. At the time of the reconnaissance the lagoons/pits were dry. Overhead and below ground piping , remaining in place, was used in the past to discharge liquids to the lagoons/pits. Grass and trees now grow in the depressions and on the old berms. An old rusted, dented, empty 55-gallon drum has been discarded in one of the lagoons/pits. No odors, stains or visual abnormalities were noted. Open area exists north of the lagoons/pits and south of the retention pond. This area is flat and vegetated with grass, weeds, bushes and trees of various sizes. No wastes were observed but various areas of soil disturbance were noted. The retention pond is constructed with slopes of approximately thirty degrees with vegetation consisting of mostly grasses and weeds. Some small bushes and trees also were present. The slopes appeared in good repair and stable. An inflow pipe was noted at the southeast corner of the basin. No flow was present and no discoloration was observed. IEPA file information indicated that there had allegedly been barrels of waste dumped on the property, but no specific time frame or location was indicated. Also file information indicated an alleged trench had been dug along the northeast corner of the retention pond for waste disposal. No evidence of this was

observed.

Soil on site consists of medium brown to tan, sandy silt and silty-sandy clay covering the entire site, with gravel utilized as roadway material at various locations. Site slope is basically imperceptible toward the east. Slope is only slightly detectable for the majority of the site with various areas observed to be susceptible to ponding. Site surface drainage follows the eastern trend as a whole with only minor amounts of runoff flowing to the west, into the drainage ditch, and north into, the retention pond. Runoff to the east flows to open field and either percolates into the soil or evaporates. In some areas runoff may pond prior to evaporation.

The nearest residential property was noted to exist approximately two hundred feet west of Grayslake Gelatin Co. Additional residential areas exist in all directions around the facility. Surface topography is relatively flat on and immediately around the site. Beyond the immediate site area the topography is gently rolling. Commercial properties exist in the downtown area of the Village of Grayslake along with others within close proximity of the facility. Two landfills, one closed and one operating, EDCO are ARF, respectively, were noted to be located one and three-quarter miles south of the Gelatin facility. Land use within the four mile radius of the site is predominantly residential within 1 mile and a combination of 50% rural and 50% residential within the remainder of the four mile radius. Light industrial and commercial use is spread throughout the urban area.

3.3 SITE REPRESENTATIVE INTERVIEW

A site representative for Grayslake Gelatin Company was not available during the time of the IEPA site reconnaissance. A discussion with the owner, regarding the property, was held

over the telephone prior to the IEPA reconnaissance. The conversation resulted in some of the information applied to Sections 1.2 and 2.2 of this report.

3.4 SAMPLING ACTIVITIES AND RESULTS

On November 29 – 30, 1994 Illinois EPA personnel collected a total of seventeen samples from within the Grayslake Gelatin Company property and immediate area surrounding the property. Samples collected consisted of twelve soil samples (including a duplicate) from within the property boundaries, one soil sample off-property, which served as the background; three sediment samples (including a duplicate) from within the drainage ditch on the west side of the property, and one sediment sample in the drainage ditch off-property, to the north, in the drainage ditch on the west side of the property. The on-property samples were collected to help determine the type of potential contaminants present and concentration of the contaminants. The off-property soil background sample was collected to serve as a baseline for constituents that may be common in area soils. The off-property sediment sample was obtained to determine sediment baseline values for the ditch prior to its entry on facility property. Additional discussions concerning the analytical results of these samples and their impact on the various migration pathways may be found in Section 4.0 of this CA report (Migration Pathways). Figure A-1 illustrates the locations of each soil & sediment sample. Table 5 describes each soil and sediment sample with its location, depth, and physical appearance. Tables 1 - 4 provide a summary of soil and sediment sample results. Table 1 provides a summary of volatile compounds detected; Table 2, semi-volatile compounds; Table 3, pesticide/PCB compounds; and Table 4, inorganic analytes detected through analysis of samples collected during the

November 1994 investigation. Also provided on these tables is highlighted results which indicate key soil & sediment samples in which contaminants were detected at concentrations exceeding specific background levels or benchmarks for respective media.

The twelve soil samples collected from on Grayslake property revealed elevated levels of several volatile constituents, a number of semi-volatile constituents, and several pesticide and inorganic constituents. All soil samples were analyzed for the Target Compound List constituents. Off-property sample X113 was designated as the background location for soil samples. Samples X102, X104, X105, X107, and X112 contain various volatile constituents at detectable levels. Sample X105 contained two constituents with levels equal to or greater than background detection limits (Table 1) and considered an observed release. Samples X104 - X106, X108 – X110, and X112 contain various semi-volatile constituents at detectable levels, however, none equal to or greater than background detection limits (Table 2). Samples X101 – X112 contained various pesticide/PCB constituents at detectable levels. Sample X107 contained Arochlor-1254, and sample X109 contained Arochlor-1260 at levels equal to or greater than background detection limits and considered an observed release (Table 3). All samples contained various inorganic analytes at detectable levels. Two of these samples contained one analyte each that was equal to or in excess of three times background levels. Zinc was detected in sample X105 in excess of background levels and copper was detected in sample X111 in excess of background levels (Table 4). These excesses are considered an observed release. Of the constituents indicated to be in excess of background levels, none are in excess of USEPA designated Removal Action Levels (RAL's).

Sediment sampling consisted of collecting four samples in the drainage ditch along the

west side of the property (three on-property and one off-property) (Figure A - 1). All sediment samples were analyzed for Target Compound List constituents. Sediment sample X203 is designated as the background comparison sample.

The sediment samples collected in November 1994 were obtained to help determine whether site activities have impacted the surface water pathway.

Three samples, X201, X202 (duplicate of X201) and X204, were collected from the drainage ditch along the west side of the Grayslake property. Sample X203 (designated as the sediment background) was collected from the ditch just north of the property. The ditch is adjacent and to the east of the Soo Line Railroad tracks which parallel the facility along the west. No water was noted to be present in the ditch during the November 1994 sampling event. The samples were collected from depths between 0 and 6 inches below the surface of the sediment. Sample analysis (Tables 1 - 4) indicated no detectable volatile constituents were present in these samples. Various semi-volatile constituents were detected in the samples at estimated concentrations but none were noted to be equal to or in excess of ten times background levels or in excess of indicated background detection limits. Various pesticide constituents were detected in all of these samples at quantitative or estimated values, however, none were noted to be equal to or in excess of three times background, ten times background (for estimated values) levels or in excess of indicated background detection limits. Numerous inorganic analytes were detected in all samples collected in the ditch. A few of the detected constituents exceed their respective background levels (Mercury in X201 & X202).

For a list of analyzed compounds and semi-volatile compounds considered to be PNA's, please refer to the Target Compound List found in Appendix C.

Any constituents with concentrations exceeding corresponding benchmarks are highlighted in Tables 1, 2, 3 & 4, the Soil & Sediment Sample Summary Tables. Detected constituent concentrations which are not highlighted are below action levels.

An analytical data package for the Grayslake Gelatin Company facility is located under a separate cover in Volume 2 of the CA report

4.0 SITE SOURCES

4.1 CONTAMINATED SOIL (ON GRAYSLAKE GELATIN PROPERTY)

During November 1994 twelve soil samples (including one duplicate) were collected from various locations on the Grayslake Gelatin property. Five of these samples plus the duplicate were collected from locations around the storm water retention pond at the north end of the property. Analysis of the collected samples indicated various contaminants at varying concentrations, both quantitative and estimated. Analysis has indicated that sample X105 contains concentrations of 1,1,1-trichloroethane and zinc which exceed respective background levels, and X109 contains concentrations of Aroclor-1260 in excess of its associated background level. Samples utilized for determining the contaminated soil source were collected at depths between the soil surface and ten inches below surface grade, within the property boundaries. According to the HRS definition of a source when referring to contaminated soil, any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from the migration of a hazardous substance is considered a source. Based on this definition, sample data and measurements from known points of contamination (X105 & X109), the source has been calculated to be an area of approximately one half acres (21,780 square feet) west of the retention pond.

4.2 CONTAMINATED SURFACE IMPOUNDMENT (FORMER PITS/LAGOONS)

Disposal of processing liquids into the pits/lagoons (approx. 75 ft. x 75 ft. x 4 ft.) of the former facility potentially lead to contamination of these areas. During the November 1994 sampling event one soil sample each (X110, west pit & X111, east pit) were collected from the

two side-by-side pits/lagoons located north of the main processing building approximately in the center of the facility. The samples were collected from the southwest corner of each pit. Sample X110 was collected from four to eight inches below surface grade while X111 was collected from soil surface to six inches below surface grade. No water was present in the pits during sampling. Analysis of the collected samples indicated various semi-volatile, and pesticide/PCB constituents present in estimated concentrations, however, none in excess of associated background levels. Analysis for inorganic analytes indicated various constituents present at quantitative concentrations, however, only one analyte (copper in sample X111) was indicated to exceed its associated background level.

According to the HRS, definition of a source is any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from hazardous substance migration. Based on this definition, sample data, approximate measurements of the pit and approximate once filled volume, the source has been calculated to be approximately 833 cubic yards.

5.0 MIGRATION PATHWAYS

5.1 GROUNDWATER

The site is located on a localized, relatively flat area on the slightly rolling Valparaiso Morainic System of Wisconsinan age. Specifically, the site is located on Quaternary glacial drift and unconsolidated deposits. Quaternary glacial drift deposits in Lake County vary in thickness from approximately 90 feet in the southeastern part of the county to more than 300 feet in the west-central portion of the county. Surficial sand and gravel deposits, when encountered, in this area are only present in thin discontinuous stringers. Deeper sand and gravel deposits are present at various locations in the county and where sufficiently thick offer potential for developing moderate to large quantities of water from individual wells. The glacial drift deposits in the Grayslake area are approximately 230 feet thick and overlie Silurian age dolomite of the Niagaran- Alexandrian Series which is approximately 110 feet thick. This geohydrologic system is referred to as the shallow dolomite aquifer. The water yielding capability of the dolomite depends upon the number, size and degree of interconnection of water-filled cracks and crevices within the rock. In some areas the dolomite directly underlies permeable glacial deposits of water-bearing sand and gravel. Under such geohydrologic conditions, an exchange of water from the drift to the bedrock is possible. Beneath the Silurian Dolomite is the Ordovician age Maquoketa Group composed primarily of non-water-bearing shale which separate the Silurian aquifer from the deeper lying water-bearing units. These shales lie at approximately 350 feet in depth and are approximately 210 feet thick. The Maquoketa Group generally is not considered as a source for water, however, locally, small supplies for domestic use may be obtained from minor systems of cracks and crevices in the more dolomitic portions of these rocks, usually found in the

upper part of the middle unit of this group. Below the Maquoketa Group is a thick sequence of hydrologically connected rocks referred to as the Cambrian-Ordovician aquifer. This aquifer system consists, in downward order, of the Galena-Platteville Dolomite, the Glenwood-St. Peter Sandstone, Eminence-Potosi Dolomite, Franconia Formation and the Ironton-Galesville Sandstone. This sequence is referred to as the Cambrian- Ordovician aquifer. Below the Ironton-Galesville Sandstone lies the Eau Clare Formation. The upper and middle portions of the Eau Claire are composed primarily of non-water-bearing shales that separate the Cambrian-Ordovician aquifer from the deeper Elmhurst-Mt. Simon Sandstone aquifer. The Elmhurst Sandstone Member at the base of the Eau Claire Formation and the underlying Mt. Simon Sandstone are hydrologically connected forming the mentioned aquifer. This aquifer is the deepest fresh water aquifer in northern Illinois lying between 1550 to 1700 feet deep and ranges in thickness from 1200 feet in the northwest part of the county to 2000 feet in the southeast part. Wells penetrating this aquifer usually extend only a few hundred feet as the water quality deteriorates (highly mineralized) with depth.

Within a four mile radius of Grayslake Gelatin Company there are three primary aquifers: 1) Glacial drift composed of silt, clay, sand and gravel, with wells having been drilled to depths ranging from 59 feet to 281 feet. 2) Silurian Dolomite composed of varying types of dolomite, with wells ranging in depth from 219 feet to 398 feet. 3) Cambrian-Ordovician composed of varying types of dolomite and sandstone, with wells ranging in depth from 1040 feet to 1250 feet. There are several public water distribution systems located within a four mile radius of Grayslake Gelatin. Public systems and private wells utilize both, the sand and gravel deposits in the unconsolidated glacial drift above bedrock and the Silurian Dolomite aquifers, for drinking water

supplies in Lake County. Illinois State Water Survey (ISWS) records indicate that there are twenty-four public water systems in Lake County using the sand and gravel deposits as a source for water. Thirty-two systems use the Silurian Dolomite and Maquoketa Group as a source of all or a portion of their water. Of the twenty-four systems utilizing the sand and gravel, two are located within the four mile radius of the site. Liberty Acres Subdivision Well #1 and Well #2 are 150 feet deep, serving 125 persons and located 2.5 miles southeast of Grayslake Gelatin Co. Wildwood Subdivision Well #3 is 173 feet deep, serving 4500 persons and located 1.75 miles east. Of the 32 systems utilizing the upper bedrock units, five are located within the four mile radius of the site. Highland Lake Subdivision Wells #1, #2 and #3, with depths ranging from 263 feet to 400 feet deep, serving 400 persons are located 1.6 miles northwest of the facility. Round Lake Park Wells #1, #2 and #3, with depths ranging from 279 feet to 330 feet deep, serving 4032 persons are located 2.0 miles west. Grayslake Well #4 (standby), with a depth of 1560 feet deep, serving 5600 persons is located 0.5 miles east. North Libertyville Estates Subdivision Well #1, with a depth of 168 feet deep is cross connected with Countryside Manor Subdivision Well #2, with a depth of 242 feet and operated as one system, serving 1260 persons are located 3.2 miles southeast. Libertyville Wells #3, #5, #6 and #8, with depths ranging from 227 feet to 330 feet deep, serving 18,900 persons are located 3.9 miles southeast of the Grayslake Gelatin facility. A total of approximately 4,625 persons are served through public water systems from the sand and gravel aquifer and approximately 30,192 persons are served through public water systems from the Silurian Dolomite aquifer. Private water well users within the four mile radius of the site number approximately 4060 persons with approximately 18 of those being from within the Grayslake Corporate Boundary.

The closest private well to the site uses the sand and gravel aquifer of concern and is, according to ISWS well logs, 3500 feet south-southeast of the facility. Wildwood Subdivision Well #3 is the closest public well to the site utilizing the sand and gravel aquifer, being 1.75 miles east of the site.

Based on information obtained and presented above, the Glacial Drift and Silurian Dolomite aquifers are considered the aquifers of concern in the area surrounding the site. Groundwater in the aquifers of concern has been encountered at depths between approximately 50 to 90 feet. Since the Maquoketa Group is a confining layer beneath the Silurian Dolomite the Cambrian-Ordovician aquifer would not be considered a concern for potential contaminant intrusion. Groundwater movement in the glacial drift aquifer has not been determined at this time. Groundwater movement in the Silurian Dolomite bedrock aquifer is assumed to be toward the east following the 10 to 15 feet per mile easterly dip of the beds of dolomite and shale as indicated by the Illinois State Water Survey Bulletin 60-20.

Number of wells and users within 4-miles of Grayslake Gelatin Company

Distance	Public Well Population	Private Well Population
0 - 1/4 mile	0	0
1/4 - 1/2 mile	0	0
1/2 - 1 mile	5600	18
1 - 2 miles	4900	697
2 - 3 miles	4157	1295
3 - 4 miles	20,160	2050

The population was calculated using USGS topographic maps for the area surrounding the facility and 2.97 people per household in Lake County, as established by the U.S. Census Bureau (1990)

5.2 SURFACE WATER

Surface water runoff from the Grayslake Gelatin Co. facility, as indicated previously tends to flow toward the east with a small portion flowing south via the railroad ditch adjacent to the west side of the facility property. Drainage patterns of the area viewed on topographic maps and aerial photographs were visually verified during the site reconnaissance. Drainage from the site flows via overland flow toward open field east of the facility and via overland flow into the railroad ditch. Beyond the property boundaries, flow toward the east terminates in the open fields where moisture either evaporates or infiltrates into the soil. Flow from the railroad ditch is classified as intermittent. The surface water runoff route (Figure 6) is vague once off site, however, the flow south can be traced to Center Street, south of the property, then east along Center Street approximately one thousand feet where runoff enters an unnamed intermittent

ditch. The intermittent ditch carries flow east approximately one thousand two hundred feet before turning north. Flow is then carried approximately four thousand feet north where the ditch joins another unnamed drainage ditch. The combined ditch remains intermittent (according to the respective National Wetland Inventory Map and the USGS Grayslake and Antioch, IL., 7.5 min. Quadrangles) and carries flow east and north approximately 6,600 feet to an unnamed pond just south of Third Lake. At this point the drainage route is indicated to become a perennial drainage way. The sites probable point of entry (PPE) to surface water is determined to be at this location. Surface drainage continues into and through Third Lake where flow exits at its' northwest corner. Flow then proceeds north via a drainage way to the southeast corner of Fourth Lake. Flow then is carried through Fourth Lake to its' northwest corner where it flows through a short channel and enters Miltmore Lake. According to the previously referred maps, the in-water segment of surface water flow terminates in Miltmore Lake. Total distance from the Grayslake Gelatin facility is approximately seven miles. Various wetland areas are encountered by this flow throughout its' course. There are no surface water intakes associated with the runoff from the facility. Fisheries associated with the in-water segment are Third Lake, Fourth Lake and Miltmore Lake. Third Lake is the first fishery encountered by drainage from the in-water segment at approximately 13,600 feet from the facility and 800 feet from the PPE. According to the National Wetland Inventory Maps, the retention pond on the facility is considered a wetland. The wetlands exist as: palustrine, open water, intermittently exposed, diked impoundment (wetlands northeast of facility); and palustrine, open water, intermittently exposed, excavated (retention pond) environments (Figure 5).

According to IEPA file information, four sediment samples were collected in the railroad

drainage ditch during a November 29, 1994 investigation. Analytical results indicate that all samples (X201-X204) contained low estimated ("J") quantities of semi-volatile and pesticide/PCB constituents (Tables 1-4, Figure A-1). Numerous inorganic analytes were also detected in all samples collected from the ditch. Comparing analytical results of all sediment samples to the background sample analytical results and background sample detection limits revealed an observed release at sample point X201 & X202 (duplicate of X201) (Mercury). Due to the proximity of the railroad to the associated ditch, the reported sample results have the potential of having been influenced by railroad runoff.

5.3 SOIL EXPOSURE PATHWAY

Grayslake Gelatin Co. was brought to the attention of the IEPA due to improper asbestos removal. Prior to this the IEPA had not been involved with the company. Other than the notification regarding the asbestos, there are no known complaints of dumping, spills or incidents resulting in contamination of the soil. However, as the company was in existence from 1900 until 1984, due to the nature of industrial practices during this time frame, there is potential for hazardous substances to be improperly disposed. The presence of lagoons/pits with associated piping, alleged trenching, alleged dumping of drum contents, a recommendation by the IEPA's Bureau of Air and the proximity of the facility to downtown Grayslake, residential areas and two schools, resulted in the need to further investigate this facility. The potential for soil contamination exists on or near the site due to the facility's past waste disposal practices. During the past, activities on-site contributed to various degrees of surface disturbance. However there are no visual signs of any anomalies. There have been no reports or complaints of foul

and/or noxious odors eminating from the facility.

According to IEPA file information, thirteen soil samples were collected throughout the facility during a November 29, 1994 investigation. Analytical results indicate that all sample locations contained low quantitative levels and/or estimated quantities of volatile, semi-volatile, pesticide/PCB, and/or inorganic constituents (Tables 1-4, Figure A-1). Comparing analytical results of all soil samples to the background sample analytical results and background sample detection limits revealed an observed release at sample point X105 (1,1,1-Trichloroethane and zinc), sample point X109 (Aroclor-1260), and sample point X111 (copper). All constituent levels, however, are indicated to be below all associated Removal Action Levels (RAL's).

Currently there are approximately 30 workers on the former property, working for various companies located in the renovated east buildings. The potential exists for the workers to come into contact with the soil on the property. Due to the facility being almost entirely fenced, contact with the soil by trespassers is minimized but not entirely prevented. Depth, below current grade, to any possible waste on site is unknown.

Nearby population within one mile of the site

Distance	Population
On-site	30
0 - 1/4 mile	3701
1/4 – 1/2 mile	9353
1/2 - 1 mile	5552

The population was calculated using USGS topographic maps for the area surrounding the facility and 2.97 people per household in Lake County, as established by the U.S. Census Bureau (1990)

5.4 AIR ROUTE

During the July 2002 reconnaissance a Foxboro Toxic Vapor Analyzer (TVA) was utilized to screen ambient air around the facility, air in the breathing zone, and air in proximity of drums and within the lagoons/pits. There are no records, reports or complaints on file of air releases from the facility. However, the potential does exist for wind blown particulates to carry contaminants off-site, if these contaminants are located within the top six inches of on-site soil. Within a 4-mile radius of the site the population is calculated to be approximately 82,200 persons. The nearest individual and regularly occupied building is on the Grayslake Gelatin property. Approximately twenty to thirty persons occupy these businesses. There are no schools or daycare facilities on-site or within 200 feet of the site. Sensitive environments within four miles of Grayslake Gelatin consist of wetlands, some of which have been described in section 5.2 of this report.

The asbestos removal procedures being carried out during the renovation of plant buildings in 1992 were revised and subsequently completed using proper removal practices and disposal practices.

Individuals potentially exposed to air-borne contaminants

Distance	Population
On-site	30
0 - 1/4 mile	3701
1/4 - 1/2 mile	9253
1/2 - 1 mile	5552
1 - 2 miles	8080
2 - 3 miles	34,800
3 - 4 miles	20,825

The population was calculated using USGS topographic maps for the area surrounding the facility and 2.97 people per household in Lake County, as established by the U.S. Census Bureau (1990)

6.0 ADDITIONAL RISK-BASED OBJECTIVES

The sediment samples collected during the November 29, 1994 investigation have been compared to ecological benchmarks to help determine whether site activities have impacted the surface water pathway. Two sources of benchmarks were used for this comparison: Ontario sediment quality guidelines and US EPA ecotox thresholds. Ontario sediment quality guidelines are non-regulatory ecological benchmark values that serve as indicators of potential aquatic impacts. Levels of contaminants below Ontario benchmarks indicate a level of pollution which has no effect on the majority of the sediment dwelling organisms. Contaminants for which no Ontario benchmarks are available are compared to US EPA ecotox thresholds. Ecotox thresholds are ecological benchmarks above which there is sufficient concern regarding adverse ecological effects to warrant further site investigation. Ecotox thresholds are to be used for screening purposes and are not regulatory criteria, site-specific cleanup standards or remediation goals.

Analytical results indicate that all of the sediment samples collected contain various semi-volatile, pesticide/PCB constituents and inorganic analytes in quantitative or estimated concentrations. Of these, all four samples exceeded the Ontario sediment guidelines for aroclor-1260, two exceeded the guidelines for aroclor-1254, two samples exceeded the USEPA ecotox threshold for toxaphene and one sample exceeded the ecotox threshold for endosulfan sulfate. All four sediment samples also exceeded Ontario sediment guidelines for arsenic, copper, iron, lead, nickel, zinc and cyanide, while three samples were noted to exceed Ontario sediment guidelines for manganese, and two samples exceeded guidelines for mercury. However, even though there were exceedances, none of the exceedances were of an extreme nature and therefore not recommended for further analysis.

The soil samples collected during the November 29, 1994 investigation have been compared to USEPA Removal Action Levels (RAL's) and the Superfund Chemical Data Matrix (SCDM) benchmarks to help determine whether site activities have impacted the soil exposure pathway and to evaluate the need for a possible removal action at the facility. Analytical results of all soil samples indicate that all concentrations detected are below all associated RAL's and SCDM benchmarks.

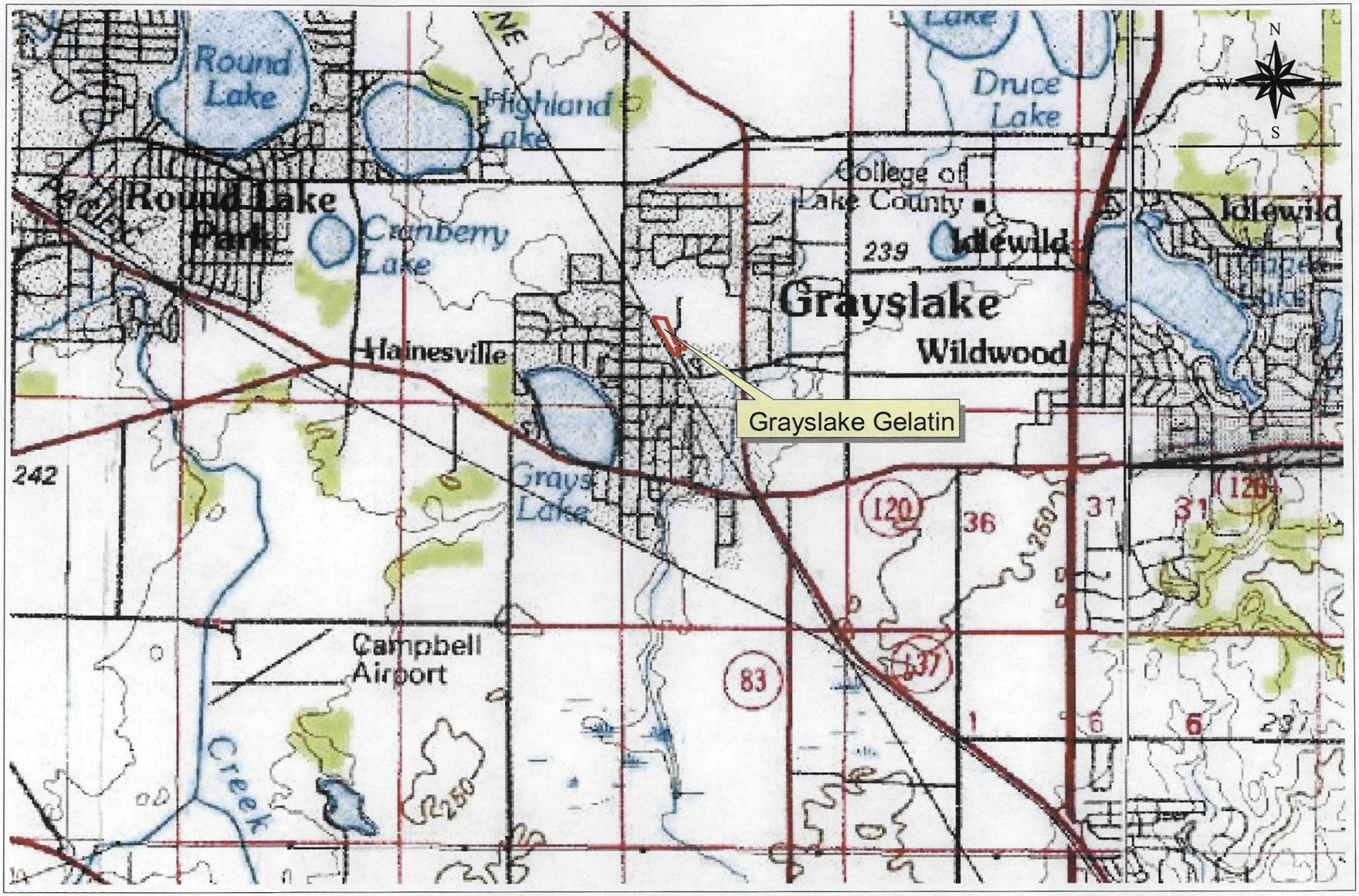
Supporting Documents

Reference Number	Documentation
1	Public Groundwater Supplies in Lake Co., Illinois State water Survey, Bul. 60-20, 1976.
2	Drainage Areas For Illinois Streams, U.S.G.S. Water Resources Investigation 13-75, 1975.
3	Summary Of The Geology Of The Chicago Area, Illinois State Geological Survey, Circular 460, 1971.
4	Geology For Planning In Lake County, Illinois, Illinois State Geological Survey, Circular 481, 1973.
5	Illinois State Atlas, 1993.
6	Land Atlas and Plat Book, Lake County, Illinois, 1982.

Grayslake Gelatin

Site Location

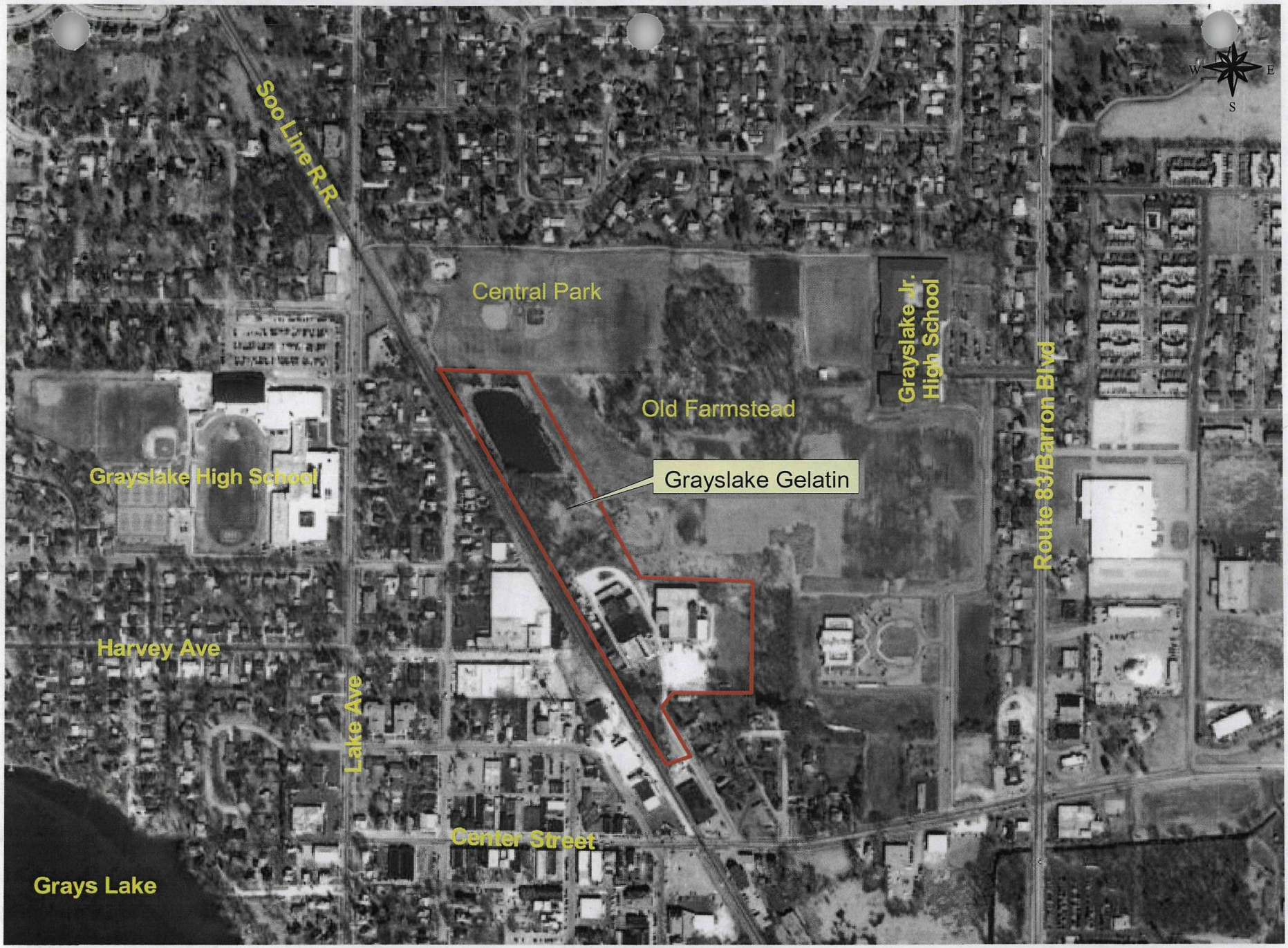
Figure 1



Grayslake Gelatin

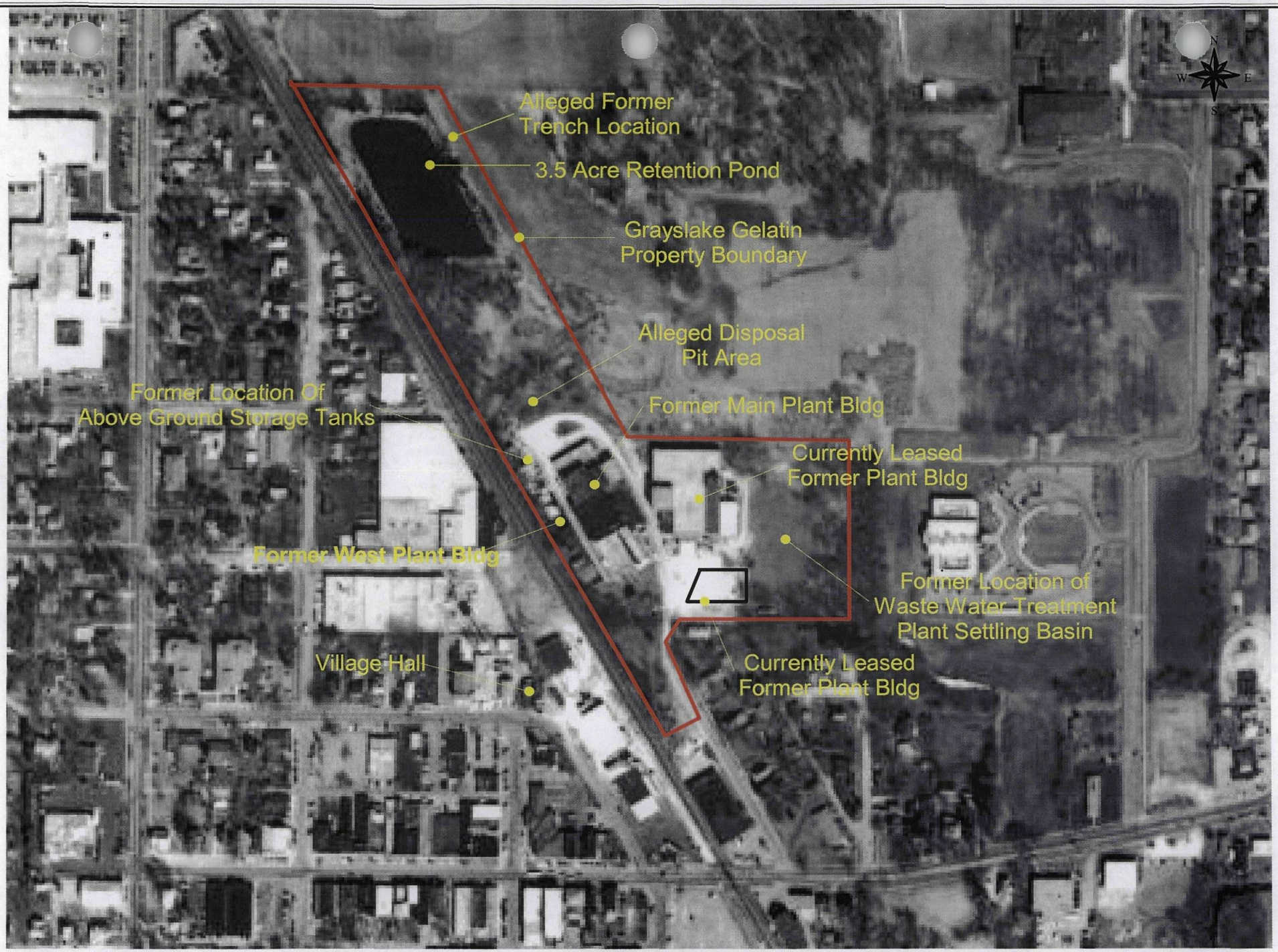
AREA TOPOGRAPHIC MAP

FIGURE 2



SITE AREA MAP

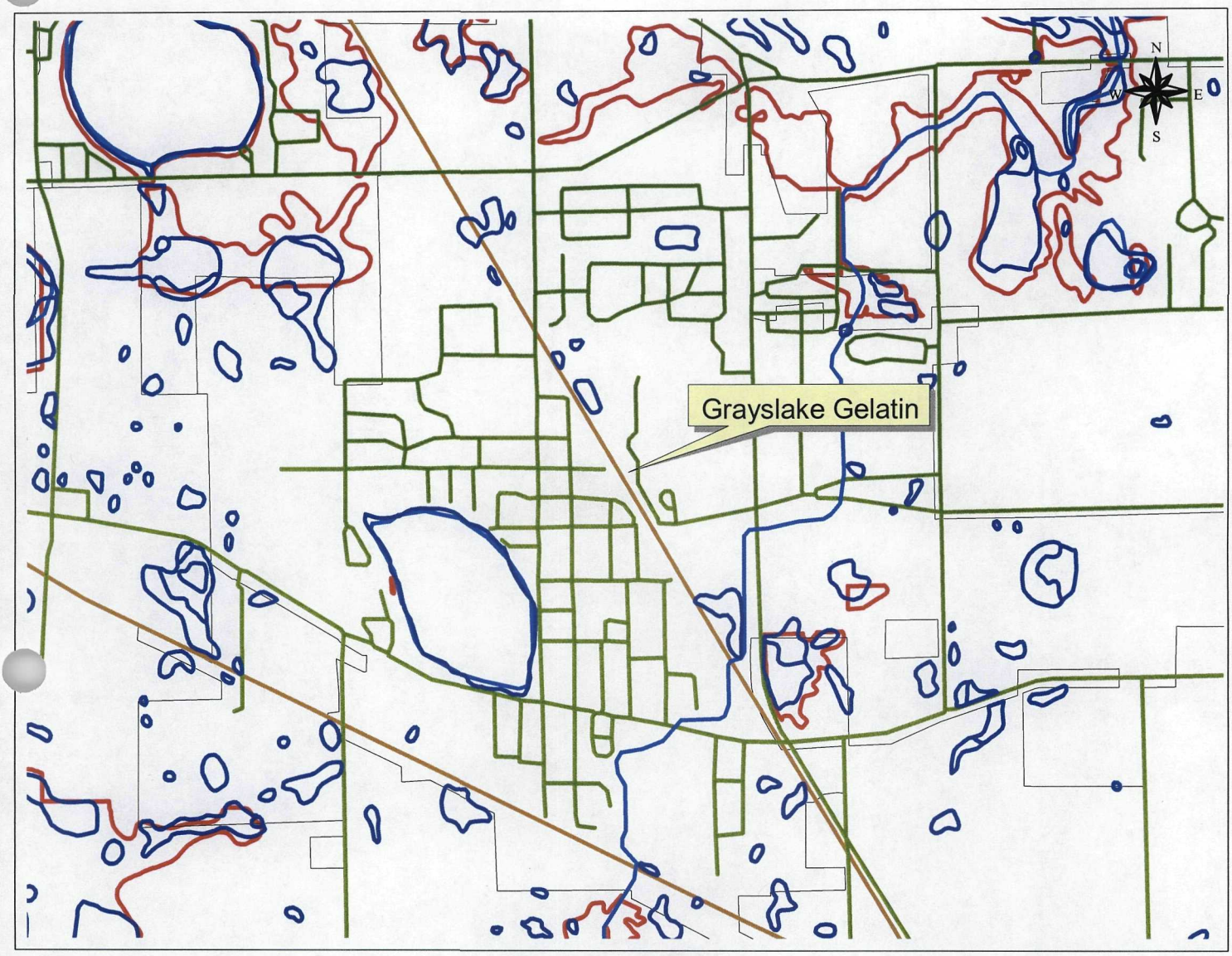
FIGURE 3



Grayslake Gelatin Co.

SITE FEATURES

FIGURE 4

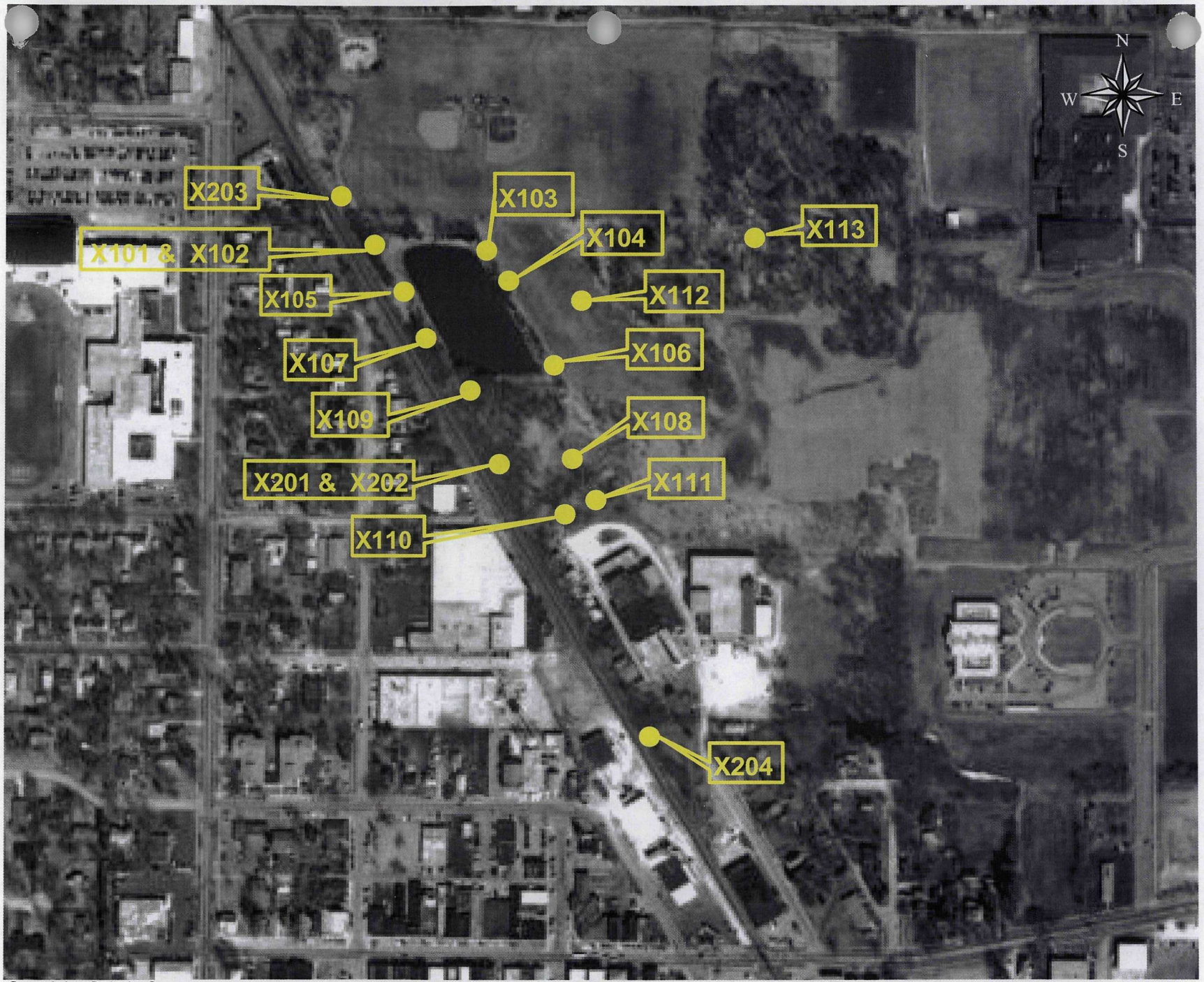


Grayslake Gelatin

WETLAND LOCATION MAP

FIGURE 5

Wetlands
Streams
Roads
Rails
Municipal Boundary
Floodzones
County



Grayslake Gelatin Co.

SAMPLE LOCATION MAP

FIGURE A-1

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 1

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Soil	X101		X102		X103		X104		X105		X106		X107		X108		X109		X110		X111		X112		X113	
Matrix :	Benchmarks	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94	
Time Sampled :	Removal	11:30		11:30		12:00		12:30		13:15		13:45		13:30		14:30		15:00		15:15		15:30		16:00		16:15	
%Moisture :	Action	29		30		15		14		27		18		31		29		25		11		65		17		28	
pH :	Levels	7.0		7.1		7.0		7.2		7.0		7.7		7.1		7.4		7.2		7.4		7.0		7.4		6.7	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0		1.0		1,0		1.0		1.0		1.0		1.0		1.0		1.0	
Volatile Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Acetone	**							6	J																		
Methylene Chloride	**									21				14	J												
trans-1,2-Dichloroethene	**																										
1,1,1-Trichloroethane	70000000			3	J					28														7	J		
Toluene	16000000									9	J													5	J		
Xylenes (total)	**									4	J													4	J		

-- Blank cells represent analytical results below detection limits.
-- "J" Flag represents analytical results with estimated values.
-- ** No RAL Benchmark designated at the current time.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 1 (cont.)

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Sediment	X201		X202		X203		X204	
Matrix :	Benchmarks	Sediment		Sediment		Sediment		Sediment	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/30/94		11/30/94		11/30/94		11/30/94	
Time Sampled :	Ontario	10:45		10:45		10:30		11:15	
%Moisture :	Sediment	26		27		30		37	
pH :	*Benchmarks*	7.2		6.9		7.1		7.2	
Dilution Factor :		1.0		1.0		1.0		1.0	
Volatile Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag
		--		--		--		--	

-- All analytical results are below detection limits.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 2

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Soil	X101		X102		X103		X104		X105		X106		X107		X108		X109		X110		X111		X112		X113	
Matrix :	Benchmarks	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94	
Time Sampled :	Removal	11:30		11:30		12:00		12:30		13:15		13:45		13:30		14:30		15:00		15:15		15:30		16:00		16:15	
%Moisture :	Action	29		30		15		14		27		18		31		29		25		11		65		17		28	
pH :	Levels	7.0		7.1		7.0		7.2		7.0		7.7		7.1		7.4		7.2		7.4		7.0		7.4		6.7	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Fluoranthene	1000000															140	J	95	J	110	J						
Pyrene	1000000															110	J			78	J						
Butylbenzylphthalate	160000000							250	J	160	J	160	J			110	J			130	J			260	J		

-- Blank cells represent analytical results below detection limits.
-- "J" Flag represents analytical results with estimated values.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 2 (cont.)

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Sediment	X201		X202		X203		X204	
Matrix :	Benchmarks	Sediment		Sediment		Sediment		Sediment	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/30/94		11/30/94		11/30/94		11/30/94	
Time Sampled :	Ontario	10:45		10:45		10:30		11:15	
%Moisture :	Sediment	26		27		30		37	
pH :	Benchmarks	7.2		6.9		7.1		7.2	
Dilution Factor :		1.0		1.0		1.0		1.0	
Semivolatile Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag
Phenanthrene	850*	99	J	120	J	100	J	240	J
Fluoranthene	2900*	200	J	240	J	100	J	300	J
Pyrene	660*	130	J	150	J			270	J
Butylbenzylphthalate	11000*			100	J			140	J
Benzo(a)anthracene	2000			110	J			170	J
Chrysene	2000	130	J	160	J			210	J
bis(2-Ethylhexyl)phthalate	**			300	J				
Benzo(b)fluoranthene	2000	200	J	140	J			190	J
Benzo(k)fluoranthene	2000							120	J
Benzo(a)pyrene	430*	90	J					150	J

-- Blank cells represent analytical results below detection limits.
-- "J" Flag represents analytical results with estimated values.
-- * USEPA Ecotox Thresholds
-- ** No Ontario Sediment Benchmarks or USEPA Ecotox Thresholds designated at the current time.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 3

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Soil	X101		X102		X103		X104		X105		X106		X107		X108		X109		X110		X111		X112		X113	
Matrix :	Benchmarks	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94	
Time Sampled :	Removal	11:30		11:30		12:00		12:30		13:15		13:45		13:30		14:30		15:00		15:15		15:30		16:00		16:15	
%Moisture :	Action	29		30		15		14		27		18		31		29		25		11		65		17		28	
pH :	Levels	7.0		7.1		7.0		7.2		7.0		7.7		7.1		7.4		7.2		7.4		7.0		7.4		6.7	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dieldrin	11000									0.19	JP	0.19	JP	1.1	JP	0.54	JP	1.1	JP	0.9	JP	0.4	JP	0.29	JP		
4,4'-DDE	500000	1.7	JP	1.8	J													2.5	J					2.1	JP		
Endrin	230000	2	JP			0.33	J	0.26	J											2.6	J					2.8	J
Endosulfan II	39000																			1.4	JP						
4,4'-DDD	710000															3.6	J	2.4	JP			0.7	JP	1.7	JP	0.77	JP
Endosulfan Sulfate	**	1.7	JP	1.4	JP			0.13	JP	1.5	JP	0.83	J	0.75	JP	2.5	J	1.5	J	0.82	J					1.1	JP
4,4'-DDT	390000	2.3	J													4.7	P	2.6	JP	1.4	JP			2.2	JP	0.56	JP
Methoxychlor	**																	1.4	JP	0.85	JP			0.59	JP		
Endrine aldehyde	**					0.28	JP			1	JP	0.47	JP					1.8	JP							0.63	JP
alpha-Chlordane	**	0.36	J							0.2	JP													0.14	JP		
gamma-Chlordane	**															0.68	JP	0.54	JP	0.31	JP	0.52	JP	0.096	JP		
Toxaphene	150000			76	J																						
Aroclor-1254	22000	22	JP	11	JP					16	JP			54	P	17	JP	16	JP	17	JP	11	JP				
Aroclor-1260	22000	39	JP							27	J					44	J	48		28	J						

-- Blank cells represent analytical results below detection limits.
-- "J" Flag represents analytical results with estimated values.
-- ** No RAL Benchmark designated at the current time.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 3 (cont.)

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Sediment	X201		X202		X203		X204	
Matrix :	Benchmarks	Sediment		Sediment		Sediment		Sediment	
Units :	ug/kg	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		11/30/94		11/30/94		11/30/94		11/30/94	
Time Sampled :	Ontario	10:45		10:45		10:30		11:15	
%Moisture :	Sediment	26		27		30		37	
pH :	Benchmarks	7.2		6.9		7.1		7.2	
Dilution Factor :		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound		Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aldrin	2					1.5	J		
Dieldrin	2	1.3	JP	1.4	JP				
4,4'-DDD	8	2.8	JP	3.1	JP	2.3	JP		
Endosulfan Sulfate	5.4*	1.7	JP					13	P
Endrine ketone	**					5	P	7	P
gamma-Chlordane	7	1.1	JP	1.3	JP	1.2	JP	1.8	JP
Toxaphene	28*	50	JP					210	JP
Aroclor-1254	60	47	P	54	P	63	P	100	
Aroclor-1260	5	41	JP	46	P	42	JP	59	P

-- Blank cells represent analytical results below detection limits.

-- "J" Flag represents analytical results with estimated values.

-- "P" Flag represents analytical results when there is greater than 25% difference for detected concentrations between the two analyzing GC columns. The lower of the two values is reported and flagged.

-- * USEPA Ecotox Thresholds

-- ** No Ontario Sediment Benchmarks or USEPA Ecotox Thresholds designated at the current time.

GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 4

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-CHAMP/

Sampling Location :	Soil	X101		X102		X103		X104		X105		X106		X107		X108		X109		X110		X111		X112		X113	
Matrix :	Benchmarks	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled :		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94		11/29/94	
Time Sampled :	Removal	11:30		11:30		12:00		12:30		13:15		13:45		13:30		14:30		15:00		15:15		15:30		16:00		16:15	
%Moisture :	Action	29		30		15		14		27		18		31		29		25		11		65		17		28	
pH :	Levels	7.0		7.1		7.0		7.2		7.0		7.7		7.1		7.4		7.2		7.4		7.0		7.4		6.7	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
ANALYTE		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	**	16600		14000		5650		11200		15300		10200		15300		16100		9660		4630		4310		14600		10200	
ANTIMONY	310	6.8	U	14	U	5.4	U	7.5	U	5.2	U	4	U	6.2	U	6.4	U	5.5	U	4.3	U	8.6	U	4.9	U	7.5	U
ARSENIC	200	6.2		6.9		9.2		3.8	B	8.8		8		7.8		5.8		7.9		5.7		3.2	B	6.2		5.6	
BARIUM	**	103		89.1		20.6	B	40.3	B	81.9		36.7		103		81.6		49.3		32.1	B	32.4	B	78.7		88.6	
BERYLLIUM	40	0.84	B	0.75	B	0.38	B	0.62	B	0.8	B	0.54	B	0.86	B	0.8	B	0.57	B	0.21	B	0.36	U	0.74	B	0.53	B
CADMIUM	25	1.1	U	1	U	0.83	U	0.81	U	0.82	U	0.66	U	0.97	U	0.88	U	0.92	U	0.71	U	1.8	B	0.82	U	0.88	U
CALCIUM	**	25100		42300		85700		83000		25300		82100		18800		28400		55800		74600		16000		44000		2920	
CHROMIUM	400	22.1		19.2		10.3		18.1		22.1		17		21.2		23.2		17.1		10.2		21.7		20.9		14.4	
COBALT	**	9.1	B	7.2	B	8.2	B	9.5	B	9.2	B	10.6		8.7	B	9.8	B	10.5	B	4.7	B	2.5	U	9.2	B	10.1	B
COPPER	5000	26.8		24.3		24.8		22		27		22.3		28.4		26.8		33		31.6		69.2		21.9		13.8	
IRON	**	23100		22900		16100		19700		25900		21900		23000		22300		21500		13400		9170		21200		14900	
LEAD	1000	26.9		22.2		13.4		14.3		33.7		13.8		31.7		23.8		28.3		57.1		31.8		20.1		36.1	
MAGNESIUM	**	14500		22900		48500		46000		15100		45500		9550		16900		31100		41300		3140		25300		2270	
MANGANESE	**	556		698		704		517		657		553		385		548		517		340		113		573		1040	
MERCURY	1600	0.04	U	0.04	U	0.03	U	0.03	U	0.03	U	0.03	U	0.05	B	0.03	U	0.03	B	0.03	U	0.14	B	0.03	U	0.03	U
NICKEL	1600	24		22.6		22.1		25.5		24.5		25.6		25.6		25.2		25.8		14.1		21.4		24.6		13.7	
POTASSIUM	**	2060		1680		1940		3450		2460		2750		1650		2890		2110		811	B	1020	B	1660		1710	
SELENIUM	2300	0.28	U	1.4	U	1.2	U	1.2	U	1.3	U	1.1	U	1.5	U	1.3	U	1.3	U	1.1	U	2.5	U	1.2	U	1.4	U
SILVER	2300	1.8	U	1	U	0.83	U	0.81	U	0.82	U	0.66	U	0.98	U	0.88	U	0.92	U	0.71	U	1.4	U	0.82	U	0.88	U
SODIUM	**	102	B	102	B	146	B	185	B	95.3	B	179	B	87.7	B	122	B	141	B	226	B	316	B	105	B	50	U
THALLIUM	55	0.37	B	1.4	U	1.2	U	1.2	U	1.3	U	1.1	U	0.3	U	3.1	B	0.25	U	1.1	U	0.5	U	1.2	U	0.28	U
VANADIUM	**	33.9		29.4		14.4		23.8		35.4		23.4		34.6		34.9		25.5		20.6		45.6		32.1		26.9	
ZINC	160000	84		78.7		68.2		52.8		272		50.2		159		72.6		91		124		174		54.1		59.9	
CYANIDE	350	0.71	U	0.7	U	0.56	U	0.58	U	0.7	U	0.59		0.74	U	0.65	U	0.78		0.69		1.2	U	0.61	U	0.75	

-- ** No RAL Benchmark designated at the current time.

41.4

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GRAYSLAKE GELATIN COMPANY

Grayslake, Illinois

TABLE 4 (cont.)

Analytical Results (Qualified Data)

SDG : 471622
Site : GRAYSLAKE
Lab. : IEPA-SPFLD

Sampling Location :	Sediment	X201		X202		X203		X204	
Matrix :	Benchmarks	Sediment		Sediment		Sediment		Sediment	
Units :	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg	
Date Sampled :		11/30/94		11/30/94		11/30/94		11/30/94	
Time Sampled :	Ontario	10:45		10:45		10:30		11:15	
%Moisture :	Sediment	26		27		30		37	
pH :	Benchmarks	7.2		6.9		7.1		7.2	
Dilution Factor :		1.0		1.0		1.0		1.0	
ANALYTE		Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	**	11300		10200		9540		14800	
ANTIMONY	**	8.5	U	5.4	U	7.6	U	6.2	U
ARSENIC	6	8.3		8.3		7		8.7	
BARIUM	**	50.9		48		62.8		177	
BERYLLIUM	**	0.66	B	0.6	B	0.67	B	0.98	B
CADMIUM	0.6	0.95	U	0.9	U	1	U	1	U
CALCIUM	**	63400		61400		39500		12400	
CHROMIUM	**	20		18.3		14.7		22	
COBALT	50	9.6	B	8.9	B	5.2	U	8.9	B
COPPER	16	38.6		38.9		43.9		55.7	
IRON	20000	22200		21700		20700		23500	
LEAD	31	52.9		51.3		132.7		98.8	
MAGNESIUM	**	35000		34300		21900		5480	
MANGANESE	460	504		493		290		480	
MERCURY	0.2	0.21		0.21		0.04	U	0.05	B
NICKEL	16	27.3		26.1		17.3		25.4	
POTASSIUM	**	2810		2360		1310	B	3030	
SELENIUM	**	1.3	U	1.3	U	1.6	U	1.6	U
SILVER	0.5	0.95	U	0.9	U	1	U	1	U
SODIUM	**	147	B	134	B	159	B	122	B
THALLIUM	**	0.26	U	1.3	U	0.31	U	0.32	U
VANADIUM	**	26.1		23.1		23.6		33.5	
ZINC	120	136		135		135		194	
CYANIDE	0.1	1.3		0.81		1.3		1.2	

-- ** No Ontario Sediment Benchmarks or USEPA Ecotox Thresholds designated at the current time.

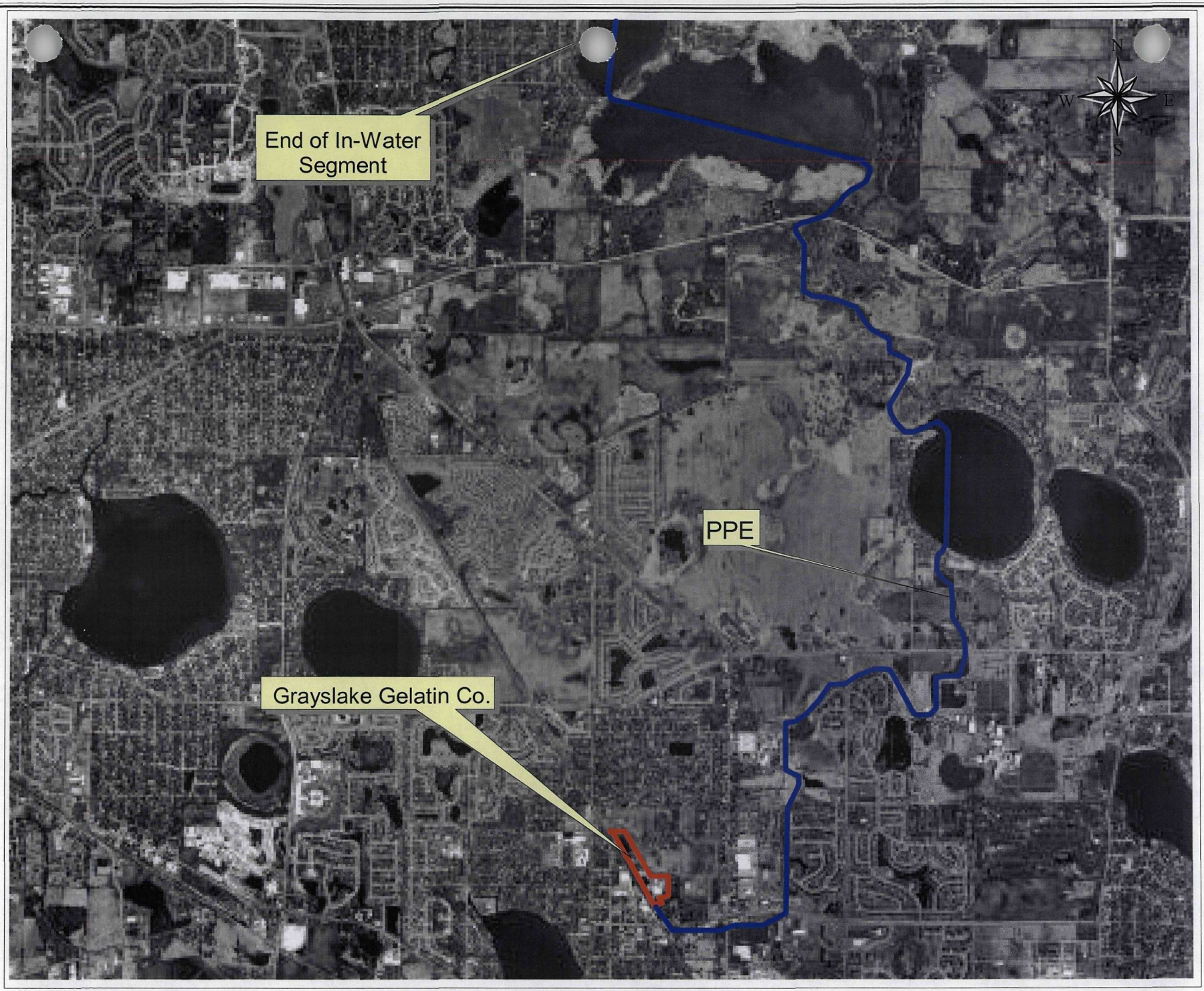
GRAYSLAKE GELATIN COMPANY
SOIL & SEDIMENT SAMPLE DESCRIPTIONS
TABLE 5

SAMPLE	DEPTH	APPEARANCE	TVA READINGS (units) * PID	FID	LOCATION
X101	6" - 10"	Dk brown silty loam	0.5	N/A	Northwest corner of Grayslake Gelatin property. NW of retention pond
X102 (Dup. of X101)	6" - 10"	Dk.Brn silty loam	0.5	N/A	Same location as X101
X103	2.5' - 3.5'	Lt. - Med. Tan sandy clay	0.5	N/A	Northeast corner of Grayslake Gelatin property, NE of retention pond.
X104	3.0' - 4.0'	Dry Med. Grey clay	0.5	N/A	South of sample X103 near NE corner of retention basin.
X105	1" - 6"	Dk. Brn silty clayey loam.	0.7	N/A	Northwest portion of Grayslake Gelatin property, near NW corner of retention pond south of X101 & X102.
X106	1" - 6"	Lt. - Med. Tan silty, clayey loam	0.5	N/A	Sample from soil at SE corner of retention pond.
X107	1" - 6"	Dk. Brn. Loam	0.5	N/A	Sample from soil along west side of retention pond, along the horizontal center line of the pond.
X108	1" - 4"	Med. Tan -Dk. Brn. clayey sand	0.5	N/A	Sample from east-central portion of the property, north of the eastern most waste pit/lagoon.
X109	6" - 10"	Dk. Brn. Loam	0.3	N/A	Sample from soil at SW corner of retention pond.
X110	4" - 8"	Dk. Brn. Loam	0.4	N/A	Sample from within the SW corner of western most waste pit/lagoon.
X111	1" - 6"	Dk.Brn. loam at surface, then cream colored clay like substance, however, not clay.	0.4	N/A	Sample from within the SW corner of eastern most waste pit/lagoon.
X112	14" - 24"	Med. Grey clay, some Lt. Tan clay, cinders and decayed wood.	4.0	N/A	Sample from open field east of retention pond, along the horizontal center line of the pond.
X113	1" - 6"	Dk. Brn. silty, sandy, clay loam.	0.3	N/A	Sample from east of barn foundation near center of park district property east of Grayslake Gelatin property.
X201	1" - 6"	Dk. Brn. - Blk. silty loam.	0.4	N/A	Sample from within drainage ditch along west side of Grayslake Gelatin property. Slightly north of the center of the n-s length of the ditch along the property boundary.
X202 (Dup. of X201)	1" - 6"	Dk. Brn. - Blk. silty loam.	0.4	N/A	Same as X201
X203	1" - 4"	Dk. Brn. silty, sandy loam.	0.3	N/A	Sample from off-property, within the drainage ditch north of the NW corner of the Grayslake Gelatin property.
X204	1" - 4"	Dk. Brn. - Blk. silty loam.	0.4	N/A	Sample from within drainage ditch at SW corner of Grayslake Gelatin property.

APPENDICES

Appendix A

4-Mile Radius Map
&
15-Mile Surface Water Route Map



Grayslake Gelatin Co.

15-MILE IN-WATER SEGMENT MAP

Figure 6

Figure 7
4-Mile Radius Map

Appendix B

Target Compound List

TARGET COMPOUND LIST

Volatile Target Compounds

Chloromethane	1,2-Dichloropropane
Bromomethane	cis-1,3-Dichloropropene
Vinyl Chlorde	Trichloroethene
Chloroethane	Dibromochloromethane
Methylene Chloride	1,1,2-Trichloroethane
Acetone	Benzene
Carbon Disulfide	trans-1,3-Dichloropropene
1,1-Dichloroethene	Bromoform
1,1-Dichloroethane	4-Methyl-2-pentanone
1,2-Dichloroehtene (total)	2-Hexanone
Chloroform	Tetrachloroethene
1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
2-Butanone	Toluene
1,1,1-Trichloroethane	Chlorobenzene
Carbon Tetrachloride	Ethylbenzene
Vinyl Acetate	Styrene
Bromodichloromethane	Xylenes (total)

Base/Neutral Target Compounds

Hexachloroethane	2,4-Dinitrotoluene
bis(2-Chloroethyl) Ether	Diethylphthalate
Benzyl Alcohol	N-Nitrosodiphenylamine
bis (2-Chloroisopropyl) Ether	Hexachlorobenzene
N-Nitroso-Di-n-Propylamine	Phenanthrene
Nitrobenzene	4-Bromophenyl-phenylether

Hexachlorobutadiene	Anthracene
2-Methylnaphthalene	Di-n-Butylphthalate
1,2,4-Trichlorobenzene	Fluoranthene
Isophorone	Pyrene
Naphthalene	Butylbenzylphthalate
4-Chloroaniline	bis(2-Ethylhexyl)Phthalate
bis(2-chloroethoxy)Methane	Chrysene
Hexachlorocyclopentadiene	Benzo(a)Anthracene
2-Chloronaphthalene	3-3'-Dichlorobenzidene
2-Nitroaniline	Di-n-Octyl Phthalate
Acenaphthylene	Benzo(b)Fluoranthene
3-Nitroaniline	Benzo(k)Fluoranthene
Acenaphthene	Benzo(a)Pyrene
Dibenzofuran	Ideno(1,2,3-cd)Pyrene
Dimethyl Phthalate	Dibenz(a,h)Anthracene
2,6-Dinitrotoluene	Benzo(g,h,i)Perylene
Fluorene	1,2-Dichlorobenzene
4-Nitroaniline	1,3-Dichlorobenzene
4-Chlorophenyl-phenylether	1,4-Dichlorobenzene

Acid Target Compounds

Benzoic Acid	2,4,6-Trichlorophenol
Phenol	2,4,5-Trichlorophenol
2-Chlorophenol	4-Chloro-3-methylphenol
2-Nitrophenol	2,4-Dinitrophenol
2-Methylphenol	2-Methyl-4,6-dinitrophenol
2,4-Dimethylphenol	Pentachlorophenol
4-Methylphenol	4-Nitrophenol
2,4-Dichlorophenol	

Pesticide/PCB Target Compounds

alpha-BHC	Endrin Ketone
beta-BHC	Endosulfan Sulfate
delta-BHC	Methoxychlor
gamma-BHC (Lindane)	alpha-Chlordane
Heptachlor	gamma-Chlordane
Aldrin	Toxaphene
Heptachlor epoxide	Aroclor-1016
Endosulfan I	Aroclor-1221
4,4'-DDE	Aroclor-1232
Dieldrin	Aroclor-1242
Endrin	Aroclor-1248
4,4'-DDD	Aroclor-1254
Endosulfan II	Aroclor-1260
4,4'-DDT	

TARGET ANALYTE LIST

Inorganic Compounds

Aluminum	Manganese
Antimony	Mercury
Arsenic	Nickel
Barium	Potassium
Beryllium	Selenium
Cadmium	Silver
Calcium	Sodium
Chromium	Thallium
Cobolt	Vanadium
Copper	Zinc
Iron	Cyanide
Lead	Sulfide
Magnesium	

List of PNA's from Target Compound List

Naphthalene

2-Methylnaphthalene

2-Chloronaphthalene

Acenaphthylene

Acenaphthene

Fluorene

Phenanthrene

Anthracene

Fluoranthene

Pyrene

Benzo(a)anthracene

Chrysene

Benzo(b)fluoranthene

Benzo(k)fluoranthene

Benzo(a)pyrene

Indeno(1,2,3-cd)pyrene

Dibenz(a,h)anthracene

Benzo(g,h,i)perylene

DATA QUALIFIERS

QUALIFIER	DEFINITION ORGANICS	DEFINITION INORGANICS
U	Compound was tested for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For soil samples subjected to GPC clean-up procedures, the CRQL is also multiplied by two, to account for the fact that only half of the extract is recovered.	Analyte was analyzed for but not detected.
J	Estimated value. Used when estimating a concentration for tentatively identified compounds (TICS) where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria and the result is less than the sample quantitation limit but greater than zero. Used in data validation when the quality control data indicate that a value may not be accurate.	Estimated value. Used in data validation when the quality control data indicate that a value may not be accurate.
C	This flag applies to pesticide results where the identification is confirmed by GC/MS.	Method qualifier indicates analysis by the Manual Spectrophotometric method.
B	Analyte was found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.	The reported value is less than the CRDL but greater than the instrument detection limit (IDL).
D	Identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor as in the "E" flag, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values are flagged with the "D" flag.	Not used.
E	Identifies compounds whose concentrations exceed the calibration range for that specific analysis. All extracts containing compounds exceeding the calibration range must be diluted and analyzed again. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses must be reported on separate Forms I. The Form I for the diluted sample must have the "DL" suffix appended to the sample number.	The reported value is estimated because of the presence of interference.
A	This flag indicates that a TIC is a suspected aldol concentration product formed by the reaction of the solvents used to process the sample in the laboratory.	Method qualifier indicates analysis by Flame Atomic Absorption (AA).
M	Not used.	Duplicate injection (a QC parameter not met).

N	Not used	Spiked sample (a QC parameter not met).
S	Not used.	The reported value was determined by the Method of Standard Additions (MSA).
W	Not used.	Post digestion spike for Furnace AA analysis (a QC parameter) is out of control limits of 85% to 115% recovery, while sample absorbance is less than 50% of spike absorbance.
*	Not used.	Duplicate analysis (a QC parameter not within control limits).
+	Not used.	Correlation coefficient for MSA (a QC parameter) is less than 0.995.
P	Not used.	Method qualifier indicates analysis by ICP (Inductively Coupled Plasma) Spectroscopy.
CV	Not used.	Method qualifier indicates analysis by Cold Vapor AA.
AV	Not used.	Method qualifier indicates analysis by Automated Cold Vapor AA.
AS	Not used.	Method qualifier indicates analysis by Semi-Automated Cold Spectrophotometry.
T	Not used.	Method qualifier indicates Titrimetric analysis.
NR	The analyte was not required to be analyzed.	The analyte was not required to be analyzed.
R	Rejected data. The QC parameters indicate that the data is not usable for any purpose.	Rejected data. The QC parameters indicate that the data is not usable for any purpose.